REMARKS

Claims 1-19 are pending in the application and all of the claims have been rejected. The Applicant has not amended the claims.

The Applicant has carefully considered the Office Action mailed on July 1, 2008 and responds to the specific issues raised by the Examiner as follows:

Information Disclosure Statement

The Examiner states at page 2 of the Office Action that the Information Disclosure Statement ("IDS") submitted on December 17, 2007 has been placed in the application file, but the information referred to therein has not been considered. The Examiner found that the Applicant did not provide copies of all of the foreign patent documents cited in the IDS as required under 37 CFR 1.98(a)(2). Specifically, the Applicant only provided a copy of the first page and not the complete copies of foreign patent documents WO 01/72525 A1 and AU-B-77389/94 listed on page 2 of the IDS.

The Applicant respectfully disagrees with the Examiner's finding and submits that the two foreign patent documents in question were identified in the IDS as counterparts of other disclosed references. As such the Applicant was not required to submit copies of these foreign patent documents under 37 CFR 1.98(c), which states:

> When the disclosures of two or more patents or publications listed in an information disclosure statement are substantively cumulative, a copy of one of the patents or publications as specified in paragraph (a) of this section may be

submitted without copies of the other patents or publications, provided that it is stated that these other patents or publications are cumulative.

The Applicant properly identified these references as cumulative and stated at the bottom of page 2 of the IDS that: "For foreign references that have an English language counterpart, the Applicant is providing the first page of the reference and a cross-reference to the English language counterpart." The Applicant submits that the IDS filed on December 17, 2007 was in compliance with 37 CFR 1.98 (c) and respectfully requests that the Examiner withdraw his objection and that the IDS be considered.

Rejection Under 35 U.S.C. 112

Claims 1, 2, 9 and 10 have been rejected as indefinite under 35 U.S.C. 112, second paragraph, for the limitations of "human sense of touch" and "through which the surface of the structure can be felt." The Examiner has found that these limitations do not provide a set structure for the invention since the "human sense of touch varies from person to person." Office Action, p. 2.

The Applicant respectfully disagrees with this finding and points out that the term "sense of touch" as used in the claims refers to the ability to detect differences in the surface nature that are easily distinguishable. The user is not required to have any heightened sensitivity since a user only has to detect a difference and is not required to ascertain an absolute value. Therefore, the degree of sensitivity of different individuals does not matter. The claims only require a person with average sensitivity, i.e., a person who can detect differences in the surface nature. This is disclosed in the specification at page 4, lines 9-15 which states:

> [I]t is precisely the different surface nature within and outside the region of a specific configuration, that contributes to the fact that even less proficient or unskilled users, as a consequence of the perceptible differing structure, can detect the configuration of the region serving as the security element and in that way can check whether there is a very high degree of probability whether this is a genuine or rather a forged security document.

The specification discloses that, when the differing structures are films, the "the substrate and the at least one surface region are formed by different kinds of film which differ markedly in properties which can be detected by means of the human sense of touch." Specification, page 4, lines 20-23. Similarly, when the differing structures are formed from paper, "the substrate and the at least one surface region are formed by paper with markedly different surface properties which can be respectively detected by means of the human sense of touch." Page 4, line 31 to page 5, line 1. Thus, the specification clearly teaches that an extraordinary sense of touch is not required since the difference between the two structures is significantly different. The fact that the sense of touch varies from person to person is discounted by the significant tactile differences between the two structures. Accordingly, the Applicant respectfully requests that the rejection of claims 1, 2, 9 and 10, as well as dependent claims 3-9 and 11-19, as indefinite be withdrawn.

Rejection Under 35 U.S.C. 102

Claims 1, 2, 6 and 7 have been rejected as being anticipated by U.S. Patent No. 5,582,103 to Tanaka ("Tanaka"), which discloses a method for making an anti-counterfeit latent image that includes forming forwardly curved portions on a surface of the substrate and corresponding recesses on the opposing surface.

The Applicant is submitting herewith the Declaration of Dr. Haymo Katschorek in lieu of a declaration by the inventor who is deceased. Dr. Katschorek's Declaration distinguishes the Tanaka `103 patent and the present invention at paragraphs 8 and 9 as follows:

> 8. The security device disclosed in the `103 patent is a latent image that uses surface irregularities and printing on the surface to generate different visual perceptions depending on the viewing angle. If the surface of the substrate is viewed orthogonally, all of the printing is clearly visible. However, if the substrate is viewed at an angle with respect to the surface, only certain parts of the printing are visible because the other parts are hidden from the viewer by the surface irregularities of the substrate.
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> 9. It is my opinion that one of ordinary skill in the art of security elements would not find the `103 patent discloses or suggests the security document in the claims of the present application. The `103 patent teaches images formed by printing on a substrate that has closely spaced surface irregularities, but does not teach surface portions having different surface natures that can be distinguished by means of the human sense of touch.

The Examiner has found at page 3, lines 18-22 of the Office Action that the "film portion" of the security document in claim 1 is anticipated by the ink printed onto the surface of the paper. However, the Examiner has not cited a reference with such a teaching nor provided any support for this finding.

The Declaration of Dr. Haymo Katschorek responds to the finding that the "film portion" of the security document in claim 1 is anticipated by the ink printed onto the surface of the paper at paragraphs 5 and 6 of his Declaration and states in paragraph 6 that:

> It is my opinion that one of ordinary skill in the art of anti-counterfeiting and security devices for documents and other valuable articles would not consider printing on the surface of a substrate to be a film. Based on my experience in the art, the commonly accepted definition of a film is a thin layer or sheet of material.

> Printing separate, unconnected lines on a substrate using ink as taught by Tanaka does not produce a thin layer or sheet of material.

In view of Dr. Katschorek's Declaration, the Applicant respectfully requests that the unsupported finding in the Office Action that ink printed on paper forms a film be withdrawn.

At page 3, line 20 to page 4, line 2, the Office Action finds (without citing a reference) that the ink printing and paper taught by Tanaka inherently have different roughnesses:

> (Column 3, Lines 12-31 [of Tanaka]; teaches that the substrate is paper and the ink film is ink and it is inherent they have at least a different roughness), the configuration and size of the surface region can be established as a consequence of the differing surface nature thereof by means of the human sense of touch (many blind individuals can feel differences in materials and raise surfaces so at least **a blind person can feel the difference in the raised portions of the substrate and then dropping to the ink pattern**).
>
> (Emphasis added.)

Dr. Katschorek's Declaration refutes the finding that ink printed on paper "inherently" has a different roughness than the paper. At paragraph 7, Dr. Katschorek states in part that:

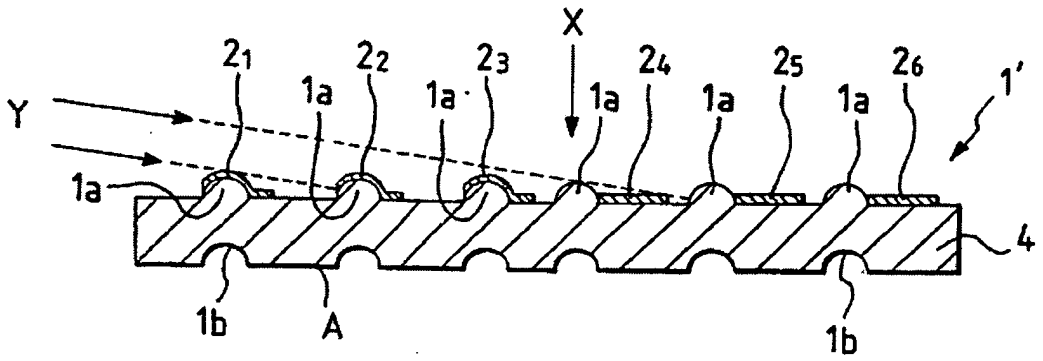
> As stated above, I disagree with the Examiner's finding that the ink printed on the substrate in the `103 patent forms a film. I also disagree with the Examiner's finding that the paper and the ink printed on the paper inherently have a different roughness. Although the paper and the ink printed on the paper can have a different roughness, the difference in the roughness is not inherent and only occurs when specific printing processes are used.
>
> * * *
>
> I have reviewed the `103 patent and the only specific type of printing method that is disclosed is offset printing (col. 3, line 27 and col. 5, line 55). It is my opinion that offset printing does not necessarily produce a document wherein the paper and the ink printed on the paper have a different roughness. Therefore, it is also my opinion that the ink and the paper in the printing method disclosed in the `103 patent do not "inherently" have different roughness that could be detected by the human sense of touch as the Examiner has found.

The Examiner's finding that Tanaka discloses a security device wherein "a blind person can feel the difference in the raised portions of the substrate and then dropping to the ink pattern" does not accurately reflect the teachings of Tanaka. Tanaka discloses at col. 3, lines 24-29 that:

> Printing of the straight lines (2) is applied to the paper (4) using ink of a different color from that of the embossed paper (4). The printing method may be a conventional one, and offset printing is usually employed. The printing is applied such that the projections (1a) and the straight lines (2) are in parallel relation.

Tanaka teaches that the projections (1a) are formed first by an embossing process and then the straight lines are printed onto the embossed paper (4). This is illustrated in FIG. 4 of Tanaka, which is reproduced below, and shows the embossed projections (1a) and the printed straight lines (2_1, 2_2, 2_3, 2_4, 2_5, 2_6). FIG. 4 clearly illustrates that the printed lines (2_1, 2_2, 2_3, 2_4, 2_5, 2_6) are not always below the embossed projections (1a) as the Office Action states t page 4, line 2 ("then dropping to the ink pattern"). Instead, some of the printed lines (2_1, 2_2, 2_3) are on top of the raised portions and some of the printed lines are below the raised portions (2_4, 2_5, 2_6).

FIG. 4

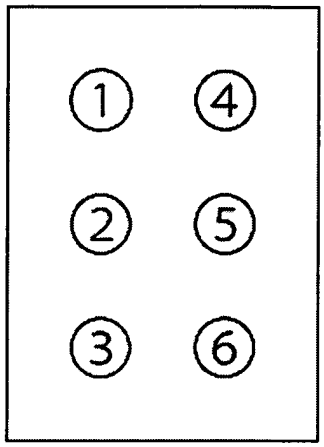


Thus, contrary to the Examiner's finding, it would be very difficult for a blind person to "feel the difference in the raised portions of the substrate and then dropping to the ink pattern" because the ink pattern can be above or below the raised portion.

Moreover, Tanaka teaches that the embossed pattern has 50 lines per inch and the line area is 50% (col. 3, lines10-12), which means that the embossed pattern and the space in between are each approximately $^{1}/_{100}^{th}$ inch (or 0.01 inches). Similarly, there are 50 printed lines per inch with a line area "within a range of about 10% to 80%, and preferably about 30%" (col. 3, lines 18-19). Thus, if the printed lines were the preferred 30% of the line area (the line area for each of the 50 lines would be $^{1}/_{50}^{th}$ of an inch), the width of the printed lines would be 30% of $^{1}/_{50}^{th}$ of an inch (or 0.006 inches) and the space between the printed lines would be 70% of $^{1}/_{50}^{th}$ of an inch (or 0.014 inch). Accordingly, when a printed line (2_4, 2_5, 2_6) is located between projections (1a), in order for a person to determine the roughness of the printed line (2_4, 2_5, 2_6) using the sense of touch, the person would have to feel between projections (1a) that are spaced $^{1}/_{100}^{th}$ inch (or 0.01 inches) apart.

The Applicant disagrees with the Examiner's finding that: "a blind person can feel the difference in the raised portions of the substrate and then dropping to the ink pattern." As discussed in the preceding paragraph, Tanaka teaches printed lines that are spaced 0.014 inch apart. Wikipedia (http://en.wikipedia.org/wiki/Braille) discloses that the Braille system used by blind people is made up of dots arranged in rows and columns:

> Braille generally consists of cells of six raised dots arranged in a grid of two dots horizontally by three dots vertically. The dots are conventionally numbered 1, 2, and 3 from the top of the left column and 4, 5, and 6 from the top of the right column. The presence or absence of dots gives the coding for the symbol. Dot height is approximately 0.02 inches (0.5 mm); the horizontal and vertical spacing between dot centers within a Braille cell is approximately 0.1 inches (2.5 mm); **the blank space between dots on adjacent cells is approximately 0.15 inches (3.75 mm) horizontally and 0.2 inches (5.0 mm) vertically**. (Emphasis added.)



Thus, the horizontal spacing of Braille dots is 0.15 inches and the vertical spacing is 0.2 inches, whereas Tanaka discloses lines spaced 0.014 inch apart—less than one-tenth the horizontal spacing and less than one-fourteenth the vertical spacing of Braille dots. Accordingly, there is no basis for the Examiner's unsupported finding that: "a blind person can feel the difference in the raised portions of the substrate and then dropping to the ink pattern."

Furthermore, as FIG. 4 of Tanaka shows, the printed lines (2_4, 2_5, 2_6) can be located between the projections (1a) or the printed lines (2_1, 2_2, 2_3) can be located on the projections (1a) so that four different surfaces are created: **(1)** the projections (1a) with a printed line (2_1, 2_2, 2_3); **(2)** projections (1a) without printed lines; **(3)** spaces between the projections (1a) with printed lines (2_4, 2_5, 2_6); and **(4)** spaces between projections (1a) without printed lines.

One skilled in the art would understand that it would be impossible to determine the roughness of a surface between lines spaced 0.014 inch apart using the human sense of touch.

Dr. Katschorek's Declaration discusses the human sense of touch and the sensitivity to different surface roughnesses at paragraphs 10 to 14 as follows:

> 10. It is also my opinion that one of ordinary skill in the art of security elements would understand the human sense of touch (as the term is used in the claims of the present application) refers to the sense of touch of an average person. Accordingly, the differences in the surface natures as used in the claims of the present application would have to be significant enough for them to be easily detected by a person with an average sense of touch. The detection of the differences in the surface natures would not require someone with a highly sensitive sense of touch. This is clearly disclosed in the specification of the present application at page 4, lines 18-23 which states:
>
> > [A]t least one surface region comprises a different material from the substrate, in which respect advantageously the substrate and the at least one surface region are formed by different kinds of film **which differ markedly in properties** which can be detected by means of the human sense of touch. (Emphasis added.)
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> 11. It is my opinion that the surface irregularities and the printing disclosed in the `103 patent are of such a kind and size that it would be almost impossible to detect the presence or absence of specific surface characteristics merely by the sense of human touch. The `103 patent discloses that the irregularities in the substrate and the printed lines are formed in patterns of 50 lines per inch. (See col. 3, lines 4-22.) This means that for each inch, if the lines and the spaces are approximately the same width, there are 50 lines and about 50 spaces between the lines so that the space between the lines is only about $^{1}/_{100}^{th}$ of an inch (i.e., about 0.254 mm wide). Moreover, as Figures 4, 6 and 7 of the `103 patent illustrate, the lines are printed on the irregular surface of the substrate so that they can be either on top of the irregularities (1a), between the irregularities (1a) or both. Therefore, it is my opinion that the very small distances between the lines and the surface irregularities and the random printing of the lines on top of and in between the irregularities would make it very difficult, if not impossible, to distinguish differences in the surface characteristics of the substrate using the human sense of touch as required in the claims of the present application.
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> 12. It is my opinion that the surface protrusions disclosed in the `103 patent are too closely spaced together to allow a person to distinguish the characteristics of different portions using the human sense of touch. The skin on the fingers is only flexible to a certain extent and, therefore, two protrusions on a surface cannot be distinguished if they are not spaced at least 0.5 mm apart. This

has been reported in several studies including a book titled, "The Somatosensory System – Deciphering the Brain's Own Body Image," edited by Randall J. Nelson, PhD, CRC Press, 2002. The relevant disclosure is found in chapter 3, which contains an article titled, "Neural Mechanisms of Tactile Form and Texture Perception," by Kenneth O. Johnson and Takashi Yoshioka ("the Johnson and Yoshioka article"). A copy of the relevant portions of chapter 3 is attached hereto as Exhibit A.

13. At page 78 of the Johnson and Yoshioka article, the authors provide a graph showing that grating orientation discrimination (the filled squares on the graph) only occurs when the groove and ridge widths are at least 0.5 mm wide. In addition, the Johnson and Yoshioka article states in the first paragraph at the top of page 81 that: "humans cannot discriminate the orientation of an Optacon [OPtical to TActile CONverter] grating pattern until the grooves in the grating exceed 5 mm width." I agree with these statements and find that they are consistent with my observations.

14. As I stated above in paragraph 11, the lines disclosed in the `103 patent are spaced about $^{1}/_{100}^{th}$ of an inch (or about 0.254 mm) apart. The findings in the Johnson and Yoshioka article confirm my opinion that the surface protrusions and the spaces between the protrusions that are disclosed in the `103 patent cannot be distinguished because they are not spaced at least 0.5 mm apart.

The Johnson and Yoshioka article cited in Dr. Katschorek's Declaration clearly shows that the human sense of touch cannot detect differences in roughness when the spacing is less than 0.5 mm apart. The spacing of the lines in the Tanaka `103 patent are about $^{1}/_{100}^{th}$ of an inch (or about 0.254 mm) apart – approximately 50% less than the minimum detectable spacing required according to the Johnson and Yoshioka article. Accordingly, the claims are not anticipated by Tanaka since the structures and lines taught by Tanaka are spaced too closely together for the difference in roughness to be detected using the human sense of touch as required by the claims.

Dependent claims 2, 6 and 7 have also been found to be anticipated by Tanaka. The Applicant submits that Dr. Katschorek's Declaration and the arguments submitted above have clearly distinguished independent claim 1 form Tanaka. Since independent claim 1 is not anticipated by Tanaka, the dependent claims cannot be anticipated and the Applicant respectfully requests that the rejection of claims 2, 6 and 7 be withdrawn.

Allowable Subject Matter

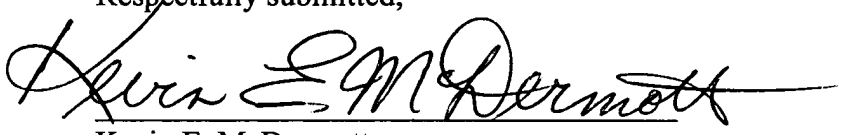
The Examiner has objected to claims 3-5 and 8 as being dependent on a rejected base claim, but found that it would be allowable if rewritten in independent form and included all of the limitations of the base claims and any intervening claims. The Applicant respectfully submits that the arguments made with respect claim 1 have distinguished the cited prior art references and elects not to rewrite claims 3-5 and 8 in independent form at this time.

Claim 10 has been found to be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph. Similarly, claim 9 has been found to be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph and include the limitations of the base and intervening claims. The Applicant respectfully submits that the arguments above have overcome these rejections under 35 U.S.C. 112, 2nd paragraph and have not amended claims 9 and 10.

Conclusion

The Applicant respectfully submits that Dr. Katschorek's Declaration and the arguments made herein have distinguished the cited reference from the present invention and requests early allowance of the claims. If the Examiner has any questions or comments relating to this response, the Examiner is respectfully invited to contact Applicant's attorney at the telephone number provided below.

Respectfully submitted,



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